

The Opioid Crisis and Orofacial Pain Management—Hypothetical Cases

CASE No. 1

Patient: Cathy is a 40-year-old Caucasian software design engineer.

Clinical Setting: Private practice office of **endodontist**.

CC: Moderate to severe constant pain in left mandibular molar region.

Medical and Oral Health History: No history of CV, GI, or renal disease. Oral health history was unremarkable except for pain associated with recent placement of a crown.

Current Meds: Tylenol #3 as needed. The patient indicated that during the last two weeks she has been increasing the number of pills she takes to try to control the pain.

HPI: Patient was referred by general dentist and presented with constant dull pain that has been present for the past 5 weeks in left mandibular second molar region. The pain developed within a few days of the placement of a crown.

The general dentist instructed the patient to take OTC pain medication, but after a week the pain persisted. The dentist then put the patient on an antibiotic for two weeks and prescribed the current pain medication. The patient was instructed to remain on the pain medication and was referred. The patient has been taking Tylenol #3 for four weeks.

Vital Signs: Height 5'3", Weight 107 lbs., Temperature 98.7, Blood Pressure 135/75, Pulse 92, Respiratory Rate 18.

Questionnaire: Moderate pain reported. The patient reported a history of occasional daytime clenching of teeth when stressed.

Exam: Orofacial exam revealed no extra-oral or intra-oral swellings or lesions. Tooth #18 had a full coverage gold crown. No signs of dental decay. Periodontal exam was unremarkable. Tooth #18 had a normal response to cold, heat, and percussion.

The posterior occlusion was checked with articulating paper and was WNL.

Range of motion of mandibular opening was restricted with deviation to the left with the ability to gain ROM with soft stretching. Palpation of the left masseter muscle detected a trigger point that referred pain to the left mandibular second molar region.

Selective anesthesia through the PDL of tooth #18 did not relieve the pain.

Tooth: Pain perceived in region of tooth #18.

Radiograph: A periapical radiograph of tooth #18 demonstrated no evidence of pathology.

Diagnosis: Myofascial pain of the left masseter muscle.

Treatment: Explained the diagnosis to Cathy. Gave her the reasons that opioids, Tylenol #3, were not the treatment of choice. Placed patient on conservative self-care for myofascial pain, including heat and cold treatment, mild range of motion exercises, techniques for checking and reducing daytime clenching, and soft diet. Requested patient return to clinic in two weeks for re-evaluation and explained she may end up benefiting with the addition of a stabilization splint.

She returns in 14 days and reports only marginal improvement. In fact, she is more upset by the persistence of the pain and states her sleep has gotten "even worse ... which has not helped things at work." She has not fully adhered to the management. The patient tells you she is too

busy to use the alternating heat and ice and forgets the exercises, only doing them about two minutes every other day.

Cathy reports using two Tylenol #3 and that it “only worked as well as two Advil, but I slept better.” At this point, there are a few things to note:

1. She is stressed at work and by the pain;
2. She is sleeping poorly, and sleep challenges might be more chronic;
3. She has not fully accepted the management options that took her effort and time;
4. Escalation of the opioid dose of Tylenol #3 provided no meaningful benefit;
5. She found the 400 mg of ibuprofen worked as well as the two tablets of Tylenol #3; and
6. She is a slight woman with a high heart rate with poor sleep and work stress.

Pain Management

Which of the following is not appropriate pain management for this patient?

- A. Take a few moments and explore any new psycho-social stressors that might trigger or aggravate this condition.
- B. Oxycodone/acetaminophen 5 mg/325 mg 2-3 times daily for pain, *and* carisoprodol for muscle tightness.
- C. Sulindac 100-200 twice daily, *along with* cyclobenzaprine 5 mg 3 times daily.
- D. Acetaminophen 500 mg 3 times daily, *and* ibuprofen 400 mg 3 times daily, *along with* tizanidine 2 mg 3 times daily.
- E. Conservative self-care as outlined above, *along with* ibuprofen 400 mg 3 times daily, *and* cyclobenzaprine 5 mg 2-3 times daily.

Answer: Answer B is not appropriate pain management for this patient.

Comments

Using carisoprodol and oxycodone in combination is generally frowned on as the alteration in mental status and “likeability” is high with those two combined. If she had alprazolam, too, it would constitute the “holy trinity,” an especially sought-after and dangerous combination of controlled substances.

Cyclobenzaprine and tizanidine are muscle relaxers and, more than that, are generally sedating. Cyclobenzaprine has some tricyclic antidepressant activity and so could benefit anxiety and pain.

Optimally, all approaches should offer attention to the root causes of tension/stress and poor sleep.

It would be helpful to have a physical therapist to refer to for such cases. This patient would also likely benefit from trigger point injections, which can be provided by a trained dentist or referred to another healthcare provider.

CASE No. 2

Patient: Bob is a 22-year-old Caucasian painter.

Clinical Setting: Private practice office of **oral surgeon**.

CC: Moderate to severe constant pain in left mandibular molar region.

Medical and Oral Health History: No history of CV, GI, or renal disease. Oral health history was unremarkable except for current pain subsequent to third molar extractions. Patient reported being successfully treated for addiction to heroin and states that he has not abused drugs since being released from treatment for his substance use disorder.

Current Meds: Meloxicam 15mg once per day.

HPI: Patient presented to office complaining of postoperative pain subsequent to extraction of third molars. The pain was localized to the extraction site of the left mandibular third molar. The patient stated the pain associated with the other extraction sites had subsided.

Vital Signs: Height 5'10", Weight 190 lbs., Temperature 100.4, Blood Pressure 128/72, Pulse 78, Respiratory Rate 16.

Questionnaire: Moderate pain reported.

Exam: The three third molar extraction sites that were not experiencing pain appeared to be healing well. The gingiva surrounding the extraction site of the left mandibular third molar was inflamed, and a small spicule of bone was extending from the extraction site.

Tooth: Not applicable.

Radiograph: A radiograph of the left mandibular third molar region showed a small spicule of bone protruding from the extraction site; otherwise, the bone in the region showed no radiographic abnormalities.

Diagnoses: (1) Pain associated with necrotic bone within extraction site. (2) Possible secondary infection of extraction site.

Treatment: (1) Bone spicule was removed using a short-acting local anesthetic for pain, and (2) Antibiotic therapy was prescribed.

Pain Management

Question Set I

After completing the above treatments, which one of the following is the most appropriate next step for this patient?

- A. Morphine solution to swish and swallow, 7.5 mg of morphine, each 6-8 hours as needed for pain over the next 5 days.
- B. Hydrocodone/acetaminophen 5 mg/325 mg (Norco)—use 1 tab by mouth each 6-8 hours as needed for pain over the next 5 days.
- C. Sodium channel blocking agent (long-acting) administered immediately post-operatively to offer a sustained block of pain.

- D. Oxycodone 10 mg, take ½-1 tab by mouth each 6-8 hours as needed for pain over the next 5 days.
- E. Inform him that no analgesia will be needed beyond OTC Tylenol and to not use more than 4,000 mg per day.

Answer: Answer C is the most appropriate next step for this patient.

Comments

One cannot safely and responsibly treat Bob without more information. Many who work in the addiction world feel that PRN dosing is not the best approach for someone with an opioid use disorder. It is important to give clear instructions and have those specifically stated on the prescription.

Before providing any opioids, the provider should learn what the “drug of choice” is—what launched the addiction.

The next step in the treatment is to explore the healing process and the likely symptoms he will experience over the coming days. Setting expectations of pain and recovery from pain is important. Ensuring he understands his pain will be treated is critical and may well prevent a relapse with his opioid use disorder. His opioid use disorder history, the specifics, must be better understood. You explore this with him and discover that heroin began after getting started on Opana in Scott County. He used Opana for one and a half years before moving to heroin as a cheaper alternative. His heroin use continued for just over one year. He did not like heroin as much, but “it did the trick”. He entered OUD treatment and was receiving methadone for five months. Then he was weaned off seven weeks ago as he left the treatment program. He states with great confidence that he will not relapse no matter what.

It is important to check the PDMP/INSPECT. Either you or your surrogate should query the system.

Pain Management

Questions Set II

What answer below is the least appropriate pain management for this patient?

- A. Meloxicam 15 mg once daily for 5 days, *and* morphine sustained release-abuse deterrent formulation 15 mg, take 1 tab by mouth bid for 3 days, and then stop.
- B. Employ a polymodal analgesic approach.
 - 1. Acetaminophen 1000 mg by mouth 3 times each day for 5 days.
 - 2. Ibuprofen 600 mg by mouth 3 times each day for 5 days.
 - 3. Gabapentin 400 mg by mouth 3 times each day for 4 days, and then stop. (Disp. # 12 tablets.)
- C. Oxycodone 5 mg, 1 by mouth each 4-6 hr. if needed for pain over the next 5 days, and then stop. (Disp. # 21 tablets.)
- D. Naprosyn 375 mg by mouth 3 times each day for 5 days, *with* tramadol 50 mg 1 by mouth each 8 hours for pain over 3 days, and then stop. (Disp. # 9 tablets.)

- E. Ketoprofen 75 mg 3 times each day for 5 days, *and* hydrocodone/acetaminophen 5mg/325mg (Norco) once each 8 hours for 1 day, then 1 pill each 12 hours for 2 days, and then stop. (Disp. # 7 tablets.)

Answer: Answer **C** is the least appropriate pain management for this patient.

Comments

His drug of choice for abuse is oxymorphone. Oxycodone is metabolized into oxymorphone, so oxycodone should be avoided. In addition, there would be no justification to use plain oxycodone in this young man. The potential of easy IV abuse and street value are high.

“1 by mouth each 4-6 hours if needed” is not appropriate instruction. Further, it is doubtful that 5 days of opioid use would be required.

Bob is young and at high risk for relapse. While he is confident that he will not relapse, and he may be correct, such certitude should not be counted on to safeguard him.

He should receive encouragement to re-establish his opioid recovery and maintenance program.

CASE No. 3

Patient: John is a 45-year-old track coach from Kenya.

Clinical Setting: Private practice office of **dentist** limiting practice to diagnosis and treatment of orofacial pain.

CC: History of intermittent severe sharp shooting pain in the right mandibular molar region.

Medical and Oral Health History: The patient reported HTN and no history of CAD, DM, GI, or renal disease. Oral health history indicated the recent placement of a crown. Otherwise, the oral health history was unremarkable, except for history of pain. Patient referred by his general dentist for evaluation and treatment.

Current Meds: OTC ibuprofen as needed, amlodipine 5 mg and chlorthalidone 25 mg.

HPI: The patient presented with a history of intermittent sharp shooting pain in the right mandibular posterior region that has been present intermittently for about four weeks. The patient reported that he was not currently experiencing the pain.

The patient had a crown replaced on the right mandibular 1st molar two weeks prior to the onset of the pain. Once the pain began, he started taking ibuprofen to try to control the pain and has been doing this for four weeks. This has not provided much relief.

Recent radiographs of the teeth in the right mandibular region showed no signs of pathology, and the general dentist suggested that the patient seek a second opinion before considering further dental treatment.

Vital Signs: Height 5'10", Weight 159 lbs., Temperature 98.0, Blood Pressure 140/90, Pulse 74, Respiratory Rate 14.

Questionnaire: Severe episodic pain, quite disturbing and incapacitating during occurrence. The location of the pain is in the same area, and the duration of each episode is fewer than 90 seconds.

The patient recalled episodes of similar pain subsequent to the placement of the initial crown on the right mandibular 1st molar several years ago, with the pain subsiding after several weeks.

Exam: Orofacial exam revealed no extra-oral or intra-oral swellings or lesions. The patient had several old amalgam restorations, some that will eventually need to be replaced. The patient had a crown on tooth #30. The right mandibular posterior teeth were not sensitive to cold, heat, or percussion. The occlusion was checked and was WNL. The periodontium was WNL.

Range of motion of mandibular opening was normal with no deviation upon opening. Palpation of the orofacial muscles was unremarkable.

Touching a particular area on the mucosa of the cheek, adjacent to tooth #30, caused the patient to wince and report a severe sharp, shooting, stabbing pain in the right mandibular molar region that was similar to what he has experienced over the past several weeks and several years ago.

Injection of local anesthesia around teeth #29, #30, and #31 did not relieve the pain.

Tooth: The patient perceived pain in tooth #30 and the surrounding area.

Radiograph: Bitewings of right mandibular posterior teeth showed no signs of pathology.

Diagnosis: Presumptive diagnosis given to patient was trigeminal neuralgia.

Treatment: Referred patient to a neurologist for further evaluation and treatment, prior to having the patient proceed with further dental treatment by general dentist.

Neurologist

The neurologist confirmed diagnosis of trigeminal neuralgia.

(See Addendum: Diagnostic criteria for trigeminal neuralgia.)

Pain Management

Which of the following is the most appropriate pain management for this patient?

- A. Amitriptyline 25 mg 60 minutes before desired slumber.
- B. Meloxicam 15 mg daily, *along with* nortriptyline 25 mg 60 minutes before desired slumber.
- C. Gabapentin 100 mg by mouth 2 times daily for 3 days; then increase to 100 mg 3 times daily, *and* ibuprofen 800 mg 3 times daily.
- D. Physical therapy, *and* tramadol 50 mg up to 4 times daily.
- E. Carbamazepine (Tegretol) 100 mg 2 times daily for 3 days, and then increase to 200 mg 2 times daily.

Answer: Answer E is the most appropriate pain management for this patient.

Comments

There are some serious etiologies for trigeminal neuralgia: tumors, multiple sclerosis, or related demyelinating processes. Most cases of trigeminal neuralgia are found in people older than 50 and are seen more in women. The etiology is usually related to aging and is associated by blood vessels compressing the trigeminal nerves. Patients with new-onset trigeminal neuralgia should generally have an MRI to exclude a tumor, demyelination, stroke, or other lesion. MR angiography may help identify vessels compressing the trigeminal nerve.

This condition is episodic and can remit and relapse. Medication can reduce the symptoms effectively, four of which appear to be the most effective. The two best are carbamazepine and oxcarbazepine. The other two medications found to be helpful are gabapentin and baclofen. Each of these four requires a titration to find an effective dose.

Meloxicam, all NSAIDs, and tramadol are not agents with evidence in trigeminal neuralgia. Physical therapy may be helpful, though trials have not demonstrated that. If one is to employ gabapentin to treat pain, the dose must be titrated at 600 mg 3 times daily before declaring it ineffective with a particular person. 100 mg of gabapentin 3 times daily would not be expected to offer meaningful relief.

Carbamazepine has a number of potential side effects, and blood tests are encouraged before and with some frequency after initiation (CBC, CMP). There is a strong association between the risk of SJS/TEN-severe cutaneous reactions and HLA-B1502 (primarily in Asians).

For refractory cases, BTX-A injections and surgery are options.

The trigeminal nerve and its fibers are responsible for nearly all sensations in the face. Anything that creates a significant change in the mouth is a potential pain trigger; this includes foods that cause sensations of heat (salsa, chili, and hot sauce), cold (mint), sweetness, and sourness. The more sharp the sensation triggered by the food, the more likely it is to activate signals that set off the pain-triggering fibers. Some people have reported irritation and pain with cinnamon, ginger, nutmeg, and black pepper. People whose primary trigger zone is the nose may get pain when eating foods with strong odors or from steamy, hot foods.

The effect of diet upon facial pain is idiosyncratic, so the things that stimulate one person's pain may not affect another. Some facial pain patients have said they were able to reduce their pain by reducing or avoiding intake of fatty foods, caffeine (coffee, tea, chocolate, and many soft drinks), and aspartame (the artificial sweetener in NutraSweet and Equal).

Dr. Neal Barnard reports that some foods are "pain-safe," not associated with triggering pain. These foods include brown rice; cooked or dried fruits such as cherries, cranberries, pears, and prunes; and cooked vegetables such as artichokes, asparagus, broccoli, chard, collards, lettuce, spinach, beans, squash, and sweet potato.

(*"Foods That Fight Pain"*, by N. Barnard) Facial Pain Association support: <http://fpa-support.org>

Addendum: Diagnostic criteria for trigeminal neuralgia

ICHD-3 criteria (International Headache Society)

Recurrent paroxysms of unilateral facial pain in the distribution(s) of one or more divisions of the trigeminal nerve, with no radiation beyond, and fulfilling criteria B and C.

- A. Pain has all of the following characteristics:
 - 1. Lasting from a fraction of a second to two minutes;
 - 2. Severe intensity; and
 - 3. Electric shock-like, shooting, stabbing, or sharp in quality.
- B. Precipitated by innocuous stimuli within the affected trigeminal distribution.
- C. Not better accounted for by another ICHD-3 diagnosis.

International Headache Society criteria

Strict criteria for trigeminal neuralgia as defined by the International Headache Society (IHS) (International Classification of Headache Disorders, 2nd Ed) in 2004 are as follows.

- A. Paroxysmal attacks of pain lasting from a fraction of a second to two minutes, affecting one or more divisions of the trigeminal nerve and fulfilling criteria B and C.
- B. Pain has at least one of the following characteristics: (1) intense, sharp, superficial, or stabbing; or (2) precipitated from trigger areas or by trigger factors.

- C. Attacks stereotyped in the individual patient.
- D. No clinically evident neurologic deficit.
- E. Not attributed to another disorder.

CASE No. 4

Patient: Mary is a 27-year-old African-American accountant.

Clinical Setting: Private practice office of **dentist** limiting practice to diagnosis and treatment of orofacial pain.

CC: "Pain around her right jaw" for the last six weeks

Medical and Oral Health History: No history of CV, GI, or kidney disease. Oral health history indicated a history of routine dental care and treatment for pain in the right temporomandibular joint. This pain began as low intensity and infrequent but has increased in frequency and intensity. Patient referred by her general dentist for evaluation and treatment.

Current Meds: Tylenol as needed.

HPI: This pain began as a low-intensity and infrequent pain but has increased in frequency and intensity. It is now nearly a constant dull pain of varying intensity located in the right temporomandibular joint area and around the right ear. Mary is using a stabilization splint provided by her general dentist and taking OTC Tylenol as needed for pain, as instructed. Mary denies any trauma.

Vital Signs: Height 5'4", Weight 167 lbs., Temperature 98.4, Blood Pressure 135/81, Pulse 90, Respiratory Rate 16.

Questionnaire: The patient reported some daytime clenching associated with stress at work. She said her husband had told her she occasionally grinds her teeth at night while she is sleeping. This was four months ago before their separation.

Exam: Orofacial exam revealed some swelling and redness over right temporomandibular joint, which was painful to palpation. The patient's dentition was in good health. The occlusion was checked with articulating paper, and the right posterior teeth were slightly out of occlusion. No working or nonworking interferences were detected.

Range of motion of mandibular opening was slightly restricted with deviation to the right upon opening. Full ROM was attainable with soft stretching, which was associated with some discomfort in the right jaw temporomandibular area.

Palpation of the orofacial muscles demonstrated some pain to palpation in the right masseter, medial pterygoid, and temporalis muscles, but no trigger points were detected.

No teeth were sensitive to heat, cold, or percussion.

The patient's current maxillary stabilization splint fit the teeth well, but the occlusal pattern on the splint was not stable at the time of the examination with light contact of teeth to splint in the right posterior region.

Tooth: Not applicable.

Radiograph: A recent panoramic radiograph was available from the general dentist. No pathology of the dentition was detected. However, a subtle flattening of the condylar head of the right TMJ was noted.

Laboratory: Appropriate blood tests were performed with no indication of a systemic arthritis.

Diagnosis: Primary diagnosis of osteoarthritis of the right TMD.

Treatment: Conservative treatment that included ice and heat, behavioral modification of daytime clenching, Medrol Dosepak, soft diet, and modification of the current maxillary stabilization splint. Patient was instructed to return for re-evaluation in two weeks.

Follow-up: At the two week follow-up appointment, Mary reported that she was continuing to experience a significant amount of pain. The splint was adjusted and the possibility that a different type of splint might be beneficial if the pain could not be managed with self-care, medications, and the current splint was discussed.

Pain Management

Which of the following is the most appropriate pain management for this patient?

- A. Tramadol 50 mg–1 tablet each 8 hours as needed for pain. (Disp. # 84 tablets.)
- B. Ketoprofen 25 mg–1 tablet taken twice daily.
- C. Ibuprofen 800 mg–1 tablet each 6 hours as needed for pain.
- D. Metaxalone 400-800 mg each 8 hours, *and* naproxen 375 mg, taken 2 times per day for 14 days, and then as needed for pain.
- E. Acetaminophen 500 mg, 1 tablet each 8 hours, *and* hydrocodone/acetaminophen 5 mg/325 mg (Norco), 1 taken each 8-12 hours as needed for pain. (Disp. # 60 tablets.)

Answer: The correct answer would be D.

Comments

One would not start this patient on scheduled opioids (tramadol or hydrocodone) at this juncture. This is especially true as there has been no INSPECT query or formal risk stratification. Additionally, there has been no discussion as to the potential harms and benefits. Lastly, there are a number of other treatments and treatment combinations that would be more appropriate before considering scheduled opioids.

Ketoprofen at 25 mg BID is too low a dose, and ibuprofen at 800 mg each 6 hours is an excessive dose.

In general, a centrally acting muscle relaxer and 14-21 days of NSAIDs should be added to splints and behavioral therapy. If this is not adequate, a low-dose (10 mg, can be slowly titrated to 50 mg) tricyclic antidepressant can be added before bed.

Providers need to remember that psychosocial issues can impact a patient's pain. If a provider suspects such issues are present, then the provider needs to either inquire about these issues or refer to another provider to help evaluate and address any pertinent psychosocial issues.

CASE No. 5

Patient: Jack is a 36-year-old Caucasian high school teacher and wrestling coach.

Clinical Setting: Office of corporate dental practice, attended by a **general dentist**.

CC: Pain in the area of tooth #30 and swelling.

Medical History: The patient reported no history of CV and renal pathology, recent history of gastric ulcers with bleeding associated with NSAIDs taken for back pain, history of opioid addiction and treatment two years ago, major depression, anxiety, 20 pack years tobacco history (1 pack/day for 20 years), currently still at 1 pack/day. Family history of alcoholism.

Oral Health History: Patient has not had consistent dental care.

HPI: The patient had an office visit 10 days ago. At that visit, his exam demonstrated multiple cavities. He has a porcelain crown on tooth #30. He initially reported throbbing and pain to tooth #30 upon exposure to cold fluids. This has now progressed to constant pain with swelling to the adjacent soft tissue, with the swelling appearing yesterday.

Current Meds: Bupropion 100 mg 2 times per day, diazepam 5mg before bed, and acetaminophen as needed.

Vital Signs: Height 5'10", Weight 185 lbs., Blood Pressure 130/85, Temperature 100.5, Pulse 88, Respiratory Rate 18.

Exam: TMJs palpation, mouth opening WNL, right submandibular lymph nodes are enlarged and tender on palpation, tooth #30 crown, percussion and buccal palpation of tooth #30 produced severe pain, mucobuccal fluctuant swelling, no response to cold, periodontium and occlusion WNL.

Diagnosis: #30 necrotic pulp and acute apical abscess.

Treatment: #30 root canal treatment, incision, and drainage.

Initial Comments

1. It would be helpful to offer a block with a longer-acting local anesthetic, so as to give him some extended analgesia.
2. Before offering any specific regimen for his pain, more information is needed:
 - a. How much APAP (acetaminophen) was he using?
 - b. How long ago was his gastric ulcer found, and did he have the f/u scope to ensure treatment success?
 - c. In an open and nonjudgmental manner, explore the OUD history and treatment, as follows:
 - i. How long was this an active addiction?
 - ii. What was his drug of choice?
 - iii. What type of treatment: detox to abstinence, detox to naltrexone, methadone, buprenorphine?
 1. When was his last use of an opioid?
 2. Has he ever relapsed?
 - iv. Does he have appropriate concern over relapse?

- v. Is he engaged in maintenance treatment, or has all treatment stopped?
- d. Does he feel that he is coping well with the pain?
- 3. Check INSPECT and perhaps nearby states' PDMP if his manner or words suggest more concern.
- 4. Recognize his risk factors:
 - a. History of OUD;
 - b. Tobacco use;
 - c. FMHx of alcohol use disorder;
 - d. Relative youth and youthful addiction;
 - e. Depression and poor sleep; and
 - f. Daily benzodiazepam use.
- 5. He has a strong contraindication for nonselective NSAIDs. If an NSAID is used, it should be COX-II inhibitor, but nabumetone and meloxicam are fairly safe alternatives in terms of GI toxicity.
- 6. Based on your clinical judgment, does his clinical picture and symptoms warrant opioids? Would you use a short course of opioid analgesia in others with this same condition?
- 7. If you are using opioids in those with an OUD, schedule the dosing regimen. Do not write *PRN*.

What you learned from questioning the patient further

The patient started opioids, hydrocodone/acetaminophen, as treatment for his LBP (lower back pain) in his early 20s. His dose escalated to morphine SR, and he lost control. He has had one relapse, just seven days, after completing 12 months of methadone treatment in a dual diagnosis program. He reports no opioid use since that brief relapse 16 months ago. That relapse occurred with analgesics given for his gastric ulcer. He has had two endoscopies. The second one revealed no active ulcer, and the biopsies showed no cancer. He has not been as active as hoped in his sobriety maintenance but has been to support groups 2-3 times each month. His partner, Pat, is with him today and is sober and has no history of substance abuse.

Jack was just taking 500 mg APAP (acetaminophen) each 8 hours or so for pain prior to the incision and drainage. Pat has been surprised by how well Jack has been coping with the pain and the complications of treatment. Jack and Pat are worried about any treatment that could trigger a relapse of his ulcer and/or his opioid use disorder.

The INSPECT query, including Ohio, Kentucky, Michigan, and Illinois, was fine. No entries since the one for his gastric ulcer.

Pain Management

Given the above information, what is the best option to manage his moderate-severe pain, among the following options?

- A. Diclofenac 75mg 3 times per day with food for 3 days, *and* smoking cessation program referral.
- B. Norco 5/325—1 tab q 4-6 hours prn pain. (Disp. # 24 tablets.)

- C. Meloxicam 15 mg daily for 5 days, *along with* Norco 5/325mg—1 by mouth each 6 hours prn pain. (Disp. # 20 tablets.)
- D. Gabapentin 600 mg each 8 hours for 5 days, *and* piroxicam (Feldene) 20 mg each day for 5 days.
- E. Meloxicam 15 mg daily for 5 days *with* omeprazole (Prilosec) 20 mg taken daily for 7 days, *and* APAP (acetaminophen) 1000 mg taken each 8 hours for 5 days, *and* tramadol 50 mg—1 each 8 hours for 2 days. Then 1 each 12 hours for 2 days, and then stop. (Disp. # 10 tablets.)

Answer: The correct answer would be **E**.

Comments

It is unlikely that 3-5 days of an NSAID would resurface the ulcer. He is worried and the risk is present. Ibuprofen, naproxen, diclofenac, celecoxib, nabumetone, and meloxicam are equianalgesic at their respective therapeutic doses. The differences are in the side-effect profiles and safety.

If your judgment is that the combination in answer E would be inadequate to control the pain, then oxycodone/acetaminophen 5 mg/325 mg (Percocet), scheduled in tramadol's place, would be reasonable.

CASE No. 6

Patient: Camila is a 67-year-old general practice *dentist* from Honduras.

Clinical Setting: Office of **oral surgeon** in private practice.

CC: “# 19 is killing me, and it hurts to swallow.”

Medical History: No history of CV, GI, or renal disease. She has HTN, diabetes (type 2), and mild-moderate depression.

She was recently been diagnosed with oropharyngeal squamous cancer Stage II (p16 positive T2 N0 M0) tonsillar cancer. The radiation therapy for this has caused mucositis, and her oncologist has been treating.

Oral Health History: Post-radiation mucositis with some xerostomia.

Current Meds: Liquid viscous lidocaine prescribed by oncologist, metformin 500 mg twice daily, lisinopril 20 mg, and sertraline 75 mg.

HPI: Pain on tooth #19 started 5 days ago. The pain has been increasing, is interfering with eating, and was disruptive to her sleep last night. She has had 9-10 lbs. of unintentional weight loss over the last 4-5 weeks.

Vital Signs: Height 5’7”, Weight 146 lbs., Temperature 98.9, Blood Pressure 123/72, Pulse 92, Respiratory Rate 18.

Questionnaire: Pain on tooth #19 rates 9/10, and pain on touch of the oral mucosa rates 10/10 on a Visual Analogue Scale (VAS) of pain intensity.

Exam: Generalized mucositis of the oral cavity mucosa. Patient has a limited mouth opening (maximum mouth opening 25 mm) and severe pain with any manipulation in the oral cavity.

Tooth #19: Occlusal amalgam restoration, percussion, and buccal palpation of #19 produces severe pain; no response to Endo Ice or electric pulp testing (EPT); mesio-distal fracture stops light on transillumination; biting tender on buccal cusps; mild mobility of the buccal fragment.

Periodontal exam was unremarkable.

Radiographically: A periapical radiograph of tooth #19 demonstrated a deep amalgam restoration and a widened PDL on both roots.

Diagnoses: Tooth #19 necrotic pulp, symptomatic apical periodontitis, split tooth. Mucositis.

Treatment: Extract tooth #19. Note: After attempting the extraction using nitrous oxide, the oral surgeon needed to administer IV sedation to the patient to complete the extraction.

Pain Management

Which of the following would be the least appropriate pain management option for the patient?

- A. Hydrocodone Elixir 10-15 ml (5 mg-7.5 mg) each 5-6 hours for 5 days. This would be communicated with her oncologist.

- B. Morphine solution (2%) 15 ml each 3-4 hours oral rinse and spit. Give quantity sufficient for 5 days.
- C. Lidocaine (2% viscous) 15 ml each 3 hours oral rinse and spit.
- D. Doxepin suspension (5 mg/ml) 10-15 ml each 4 hours oral rinse and spit.

Answer: Answer C would be the least appropriate option.

Comments

- Dentists should address dental problems and coordinate treatment with the medical doctors.
- Even though the patient would be at fairly low risk, INSPECT should be checked prior to prescribing an opioid.
- While she is at fairly low risk, she does have depression and is experiencing a significant trauma. Both of these increase the risk of opioid misuse and possible OUD.
- The lidocaine treatment has already failed and would not be acceptable as a sole modality given her pain, restricted mouth opening, and weight loss.
- She should be encouraged to use the analgesia fairly liberally. She has lost weight already. It may be helpful to remind her to use liquid/soft diet as much as she can during this painful period.
- This pain can be severe, and a combination of treatments or dose increases might be required to adequately manage her pain.
- Correct disposal of the unused opioids should be advised:
<http://www.in.gov/idem/recycle/2343.htm>.

CASE No. 7

Patient: Giang is a 16-year-old Vietnamese male.

Clinical Setting: Private practice of **general dentist**.

CC: “Crashed my bike and hit my mouth hard.”

Medical History: Obesity (BMI 34), no history of CV, GI, or renal disease.

Oral Health History: Unremarkable.

Current Meds: Multivitamins OTC.

HPI: Giang hit a stone and went face over handlebars striking his face and mouth on the sidewalk. He was with a friend, and there was no apparent loss of consciousness. His lip was bleeding, as were two abrasions above his right eye. He reports being sore but no headache, nausea/vomiting, or visual changes.

Vital Signs: Height 5’7”, Weight 213 lbs., Temperature 98.5, Blood Pressure 138/80, Pulse 90, Respiratory Rate 18.

Questionnaire: Pain reported as 8 out of 10 on a VAS for pain intensity.

Exam: TMJs palpation and range of motion WNL with no deviation. Swollen upper lip.

Teeth #8 and #9 coronal segments are mobile and displaced lingually, tender to percussion, bleeding from the gingival sulcus, no response to cold, normal enamel color.

Periodontal exam was unremarkable.

Cranial nerves exam WNL.

Radiographically: Periapical 90-degree angle image with the central beam through the teeth did not reveal the location of the fractures.

An occlusal view or radiographs with varying horizontal angles (or CBCT) of the anterior teeth revealed oblique fractures of teeth #8 and #9 located in the middle third of the roots, no alveolar fractures.

Diagnosis: Teeth #8 and #9 oblique root fractures in the middle third with lingual displacement.

Treatment:

- Coronal segments of the teeth #8 and #9 were repositioned, which was confirmed radiographically.
- Teeth were stabilized with a flexible wire splint for 4 weeks.
- The patient and his mother were instructed that if pulp necrosis develops, root canal treatment of the coronal tooth segment to the fracture line will be indicated to preserve the tooth.

Monitor healing for at least 1 year to determine pulpal status

Follow-up:

- 4 weeks—Splint removal, clinical and radiographic examination.

- 6-8 weeks—Clinical and radiographic examination.
- 6 months—Clinical and radiographic examination.
- 1 year—Clinical and radiographic examination.
- 5 years—Clinical and radiographic examination.

Note: If the root fracture is near the cervical area of the tooth, stabilization is beneficial for a longer period (up to 4 months).

Pain Management

One or more of the following pain management options is/are appropriate for this patient. Which of the following is the best answer?

- A. Ibuprofen 600 mg each 8 hours for 3-5 days.
- B. Acetaminophen 1000 mg each 6-8 hours for 3-5 days.
- C. Hydrocodone/acetaminophen 5 mg/325 mg (Norco), 1 by mouth each 6-8 hours as needed for 5 days. (Disp. #20 tablets.)
- D. Tramadol 50 mg, 1 by mouth each 6 hours as needed for pain. (Disp. # 30 tablets.)
- E. A and B each present an appropriate pain management option.

Answer: The best answer would be E.

Comments

Giang is younger than 25. In fact, he is younger than 18, so he has a greater risk of harm/OD than he would if he were older than 45. Additionally, he is obese and so has a relative contraindication for using opioids. With his youth and obesity, opioids, including tramadol, should be avoided because of the increased risk of serious breathing problems. If there is a clinical indication to provide opioids to humanely address pain, opioids should be used and used with caution and education.

References

FDA guidelines: A new *Warning* to the drug labels of codeine and tramadol to recommend against their use in adolescents between 12 and 18 years who are obese or have conditions such as obstructive sleep apnea or severe lung disease, which may increase the risk of serious breathing problems.

[1-11-2018] The U.S. Food and Drug Administration (FDA) is requiring safety labeling changes for prescription cough and cold medicines containing codeine or hydrocodone to limit the use of these products to adults 18 years and older. The risks associated with these medicines outweigh their benefits in children younger than 18.

[4-20-2017] The FDA is restricting the use of codeine and tramadol medicines in children. Codeine is approved to treat pain and cough, and tramadol is approved to treat pain. These

medicines carry serious risks, including slowed or difficult breathing and death, which appear to be a greater risk in children younger than 12 years, and should not be used in these children. These medicines should also be limited in some older children. Single-ingredient codeine and all tramadol-containing products are FDA-approved only for use in adults. We are also recommending against the use of codeine and tramadol medicines in breastfeeding mothers due to possible harm to their infants.

These new actions further limit the use of these medicines beyond our 2013 restriction of codeine use in children younger than 18 years to treat pain after surgery to remove the tonsils and/or adenoids. We are now adding:

- FDA's strongest warning, called a *Contraindication*, to the drug labels of codeine and tramadol alerting that codeine should not be used to treat pain or cough and tramadol should not be used to treat pain in children younger than 12 years.
- A new *Contraindication* to the tramadol label warning against its use in children younger than 18 years to treat pain after surgery to remove the tonsils and/or adenoids.
- A new *Warning* to the drug labels of codeine and tramadol to recommend against their use in adolescents between 12 and 18 years who are obese or have conditions, such as obstructive sleep apnea or severe lung disease that may increase the risk of serious breathing problems.